SOLUCION A LOS EJERCICIOS DADOS EN CLASES GESTION 2002

GRUPO # 22

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```
import java.io.*;

public class TAleatorio{

     public static void Limpiar(){

          System.out.println();
          System.out.println();
          System.out.println();
          System.out.println();
          System.out.println();
          System.out.println();
          System.out.println();
          System.out.println();
     }

     public static void main (String Args[]) throws IOException{


          try{
               int I = 1;

               while (I > 0){
                    System.out.println();
                    System.out.println("El rango de 1 <= N <= 2 es: " +
Integer.toString( 1 + (int) (Math.random() * 2) ) );
                    System.out.println();
                    System.out.println("El rango de 1 <= N <= 100 es: " +
Integer.toString(1 + (int) (Math.random() * 100)) );
                    System.out.println();
                    System.out.println("El rango de 0 <= N <= 9 es: " +
Integer.toString((int) (Math.random() * 10) ));
                    System.out.println();
                    System.out.println("El rango de 1000 <= N <= 1112 es: "
+ Integer.toString(1000 + (int) (Math.random() * 113) ));
                    System.out.println();
                    System.out.println("El rango de -1 <= N <= 1 es: " +
Integer.toString(-1 + (int) (Math.random() * 1 ) ));
                    System.out.println();
                    System.out.println("El rango de -3 <= N <= 11 es: " +
Integer.toString(-3 + (int) (Math.random() * 9) ));
                    System.out.println();
                    System.out.println();

                    System.out.println("Introduzca el cero para salir!!!");
                    System.out.print("R.- ");
                    System.out.flush();
                    I = System.in.read() - 48;
                    System.in.skip(2);

                    Limpiar();
               }
          }
          catch (Exception E){
```

```
                System.err.println("Error: Sus datos no son validos!!!");
            }
        }
}


public class TConjunto{

      public static void main (String Args[]){

                System.out.println("A = {2, 4, 6, 8, 10}");
                System.out.println();
                System.out.println("B = {3, 5, 7, 9, 11}");
                System.out.println();
                System.out.println("A = {6, 10, 14, 18, 22}");
                System.out.println();


                int I, Aux = 3;
                I = (int) (Math.random() * 5) + 1;

                for (byte J = 1; J <= 5; J++)
                     if (I == J){
                          System.out.println("El elemento del conjunto A es:
" + J * 2);
                          break;
                     }



                I = (int) (Math.random() * 5) + 1;

                for (byte J = 1; J <= 5; J++){

                     if (I == J){
                          System.out.println("El elemento del conjunto B es:
" + Aux);
                          break;
                     }

                     Aux += 2;
                }



                Aux = 6;

                I = (int) (Math.random() * 5) + 1;

                for (byte J = 1; J <= 5; J++){

                     if (I == J){
                          System.out.println("El elemento del conjunto B es:
" + Aux);
```

```
                    break;
                }

                Aux += 4;
            }
        }
}
```

```
import java.awt.*;
import java.applet.*;


public class TExponente extends Applet {

      Label      L1, L2;
      TextField  E1, E2;
      Button     B1;

      public long Valor;

      public void init() {

            Valor = 1;
            L1 = new Label ("Introduzca un valor: ");
            L2 = new Label ("Introduzca el exponente: ");
            E1 = new TextField ("0", 5);
            E2 = new TextField ("1", 5);
            B1 = new Button ("Aceptar");

            add (L1);  add (E1);
            add (L2);  add (E2);
            add (B1);
      }

      public boolean action (Event E, Object O){

            if (E.target == B1){

                  for (int I = 1; I <= Integer.parseInt(E2.getText()); I++)
                        Valor *= (long) Integer.parseInt(E1.getText());

                  repaint();
            }

            return (true);
      }

      public void paint(Graphics G) {

            G.drawString("El valor es: " + Long.toString(Valor), 250, 150 );
            Valor = 1;
      }
}
============
```

```
import java.awt.*;
import java.applet.*;


public class THipotenusa extends Applet {

      Label      L1, L2;
      TextField  E1, E2;
      Button     B1;

      public double Hipotenusa;

      public void init() {

            Hipotenusa = 1;
            L1 = new Label ("Introduzca el cateto opuesto: ");
            L2 = new Label ("Introduzca el cateto adyacente: ");
            E1 = new TextField ("1", 5);
            E2 = new TextField ("1", 5);
            B1 = new Button ("Aceptar");

            add (L1);  add (E1);
            add (L2);  add (E2);
            add (B1);
      }

      public boolean action (Event E, Object O){

            if (E.target == B1){

                  Hipotenusa = Math.pow(Double.parseDouble(E1.getText() ), 2) +
Math.pow(Double.parseDouble(E2.getText() ), 2);
                  repaint();
            }

            return (true);
      }

      public void paint(Graphics G) {

            G.drawString("El valor es: " + Double.toString(Hipotenusa), 250,
150 );
            Hipotenusa = 1;
      }
}
====
```

```
@(#)TMultiplo.java
import java.awt.*;
import java.applet.*;


public class TMultiplo extends Applet {


      Label      L1, L2;
      TextField  E1, E2;
      Button     B1;
      boolean    Sw;

      public void init() {

            Sw = false;

            L1 = new Label ("Introduzca el primer número: ");
            L2 = new Label ("Introduzca el segundo número: ");
            E1 = new TextField ("1", 5);
            E2 = new TextField ("1", 5);
            B1 = new Button ("Aceptar");

            add (L1);  add (E1);
            add (L2);  add (E2);
            add (B1);
      }


      public boolean action (Event E, Object O){

            if (E.target == B1){

                  if ( (Integer.parseInt(E2.getText() ) / Integer.parseInt
(E1.getText()) ) == 0 )
                        Sw = true;

                  repaint();
            }

            return (true);
      }

      public void paint(Graphics G) {
            if (Sw)
                  G.drawString("El segundo número es multiplo del primero",
100, 100);
            else
                  G.drawString("El segundo número no es multiplo del primero",
100, 100);
            Sw = false;
      }
}
====
```

```
import java.awt.*;   // Librerias para graficos(Abstrac Window Toolkit)
import java.applet.Applet;

public class TNumeros extends Applet{

      Label      L1;
      TextField  E1;
      Button     B1;


      public void init(){

            L1 = new Label ("Introduzca el primer número: ");
            E1 = new TextField (5);
            B1 = new Button ("Calcular");

            add (L1);
            add (E1);
            add (B1);
      }

      public boolean action (Event E, Object O){

            if (E.target == B1){
                  if (Integer.parseInt(E1.getText()) % 2 == 0 )
                        showStatus ("El número es par!!!");
                  else
                        showStatus ("El número es impar!!!");

                  repaint();
            }

            return true;
      }

}
======
import java.io.*;

public class TGrafico{
      public static void main(String Args[]) throws IOException{

              System.out.println();
              System.out.print("Introduzca un numero: ");
              System.out.flush();
              int A = System.in.read() - 48;
              System.in.skip(2);

              System.out.print("Introduzca un caracter: ");
              System.out.flush();
              int C = System.in.read();
              System.in.skip(2);
```

```
            for(byte I = 1; I <= A; I++){
                for (byte J = 1; J <= A; J++)
                    System.out.print((char) C);

                 System.out.println();
            }
     }

}
====
import java.io.*;

public class TGrafico{
     public static void main(String Args[]) throws IOException{

            System.out.println();
            System.out.print("Introduzca un numero: ");
            System.out.flush();
            int A = System.in.read() - 48;
            System.in.skip(2);

            System.out.print("Introduzca un caracter: ");
            System.out.flush();
            int C = System.in.read();
            System.in.skip(2);


            for(byte I = 1; I <= A; I++){
                for (byte J = 1; J <= A; J++)
                    System.out.print((char) C);

                 System.out.println();
            }
     }

}
=====
```

```
import java.awt.*;
import java.applet.Applet;

public class TGraficos extends Applet{

     Label       L1;
     TextField E1;
     Button     B1;

     private String C;
     private Color Colorcito;

     public void Asignar(String Aux){
          C = Aux;
     }

     public void Rectangulo (Graphics G){

          for (byte I = 1; I <= 70; I+=4){
               G.drawString (C, I+50, 150);
               G.drawString (C, I+50, 250);
          }


          for (byte I = 1; I <= 100; I+=4){
               G.drawString (C, 50, I + 150);
               G.drawString (C, 120, I + 150);
          }
     }

     public void Elipse (Graphics G){

          for (byte I = 1; I <= 70; I+=4){
               G.drawString (C, 350, I + 160);
               G.drawString (C, 420, I + 160);
          }

          for (byte I = 1; I <= 40; I+=8){
               G.drawString (C, I + 370, 140);
               G.drawString (C, I + 370, 250);
          }

          G.drawString (C, 360, 150);
          G.drawString (C, 410 ,150);
          G.drawString (C, 360, 240);
          G.drawString (C, 410, 240);
     }

     public void Flecha (Graphics G){

          G.drawString(C, 180, 152);

          for (byte J = 1; J <= 5; J++)                         // Columnas
               for (byte I = 0; I<=J; I++){         //  Filas
```

```
                    G.drawString (C, 180 - (I * 8), 150 + (J * 8));
                    G.drawString (C, 180 + (I * 8), 150 + (J * 8));
               }

          for (int I = 1; I <= 8; I++)
               G.drawString (C, 180, 200 + (I * 6) );
     }


     public void Rombo (Graphics G){

          for (byte I = 0; I <= 7; I++){
               G.drawString (C, 270 + (I * 5), 150 + (I * 8));  // Arriba
               G.drawString (C, 270 - (I * 5), 150 + (I * 8));

               if (I < 7){
                    G.drawString (C, 270 + (I * 5), 260 - (I * 8));  //
Abajo
                    G.drawString (C, 270 - (I * 5), 260 - (I * 8));
               }
          }
     }

     public void init (){

          L1 = new Label ("Introduzca un carácter: ");
          B1 = new Button ("Aceptar");
          E1 = new TextField (5);

          add (L1);
          add (E1);
          add (B1);
     }

     public boolean action (Event E, Object O){

          if (E.target == B1){
               String C = E1.getText();
               Asignar (C);
               repaint();
          }
          return (true);
     }

     public void paint (Graphics G){
          G.setColor  (Color.blue);
          Rectangulo(G);
          Flecha (G);
          Rombo (G);
          Elipse (G);
          showStatus ("Made By ACP");
     }
}
======
```

```
import java.awt.*;
import java.applet.Applet;

public class TRectangulo extends Applet{

     Label       L1, L2, L3, L4;
     TextField E1, E2, E3, E4;
     Button     B1;

     private  int X, Y, Grosor, Altura;

     public void Asignar (int A, int B, int C, int D){

          X = A;
          Y = B;
          Grosor = C;
          Altura = D;
     }


     public void init (){

          X = Y = Grosor = Altura = 0;

          L1 = new Label ("Introduzca X1: ");
          L2 = new Label ("Introduzca Y1: ");
          L3 = new Label ("Introduzca X2: ");
          L4 = new Label ("Introduzca Y2:  ");

          E1 = new TextField (5);
          E2 = new TextField (5);
          E3 = new TextField (5);
          E4 = new TextField (5);

          B1 = new Button ("Aceptar");

          add (L1);  add (E1);
          add (L2);  add (E2);
          add (L3);  add (E3);
          add (L4);  add (E4);
          add (B1);
     }


     public boolean action (Event E, Object O){

          if (E.target == B1){
               Asignar (Integer.parseInt(E1.getText()),
Integer.parseInt(E2.getText()), Integer.parseInt(E3.getText()),
Integer.parseInt(E4.getText()) );
               repaint ();
          }

          return (true);
```

```
      }
      public void paint (Graphics G){

            G.setColor (Color.blue);
            G.fillRect (X, Y, Grosor, Altura);
            showStatus ("Made by ACP");
      }
}
===
```

```
import java.awt.*;
import java.applet.*;

public class TNumero extends Applet {

      Label      L1, L2;
      TextField  E1, E2;
      Button     B1;

      private    int A, B;


      private int Divisible (int X, int Y){

            return (X / Y);
      }

      private String Digitos_Separados (int X){

            String Cad = "";

            while (X > 0){
                  Cad = (X % 10) + " " + Cad;
                  X /= 10;
            }

            return (Cad);
      }

      public void init() {

            setLayout (null);

            A = B = 1;

            L1 = new Label ("Introduzca el primer número: ");
            L2 = new Label ("Introduzca el segundo número: ");

            E1 = new TextField (5);
            E2 = new TextField (5);

            B1 = new Button ("Aceptar");

            add (L1);  add (E1);
            add (L2);  add (E2);
            add (B1);


            L1.reshape(10, 15, 180, 25);
            E1.reshape(200, 15, 50, 20);
            L2.reshape(290, 15, 180, 25);
            E2.reshape(490, 15, 50, 20);
            B1.reshape(560, 15, 50, 20);
      }
```

```
     public boolean action (Event E, Object O){

          if (E.target == B1){
               A = Integer.parseInt(E1.getText() );
               B = Integer.parseInt(E2.getText() );

               repaint();
          }

          return (true);
     }


     public void paint(Graphics G) {

          G.drawString("La parte A/B es: " +
Integer.toString(this.Divisible(A, B)), 250, 100 );
          G.drawString("La parte B/A es: " +
Integer.toString(this.Divisible(B, B)), 250, 120 );
          G.drawString("Los dígito separados del número A son: " +
this.Digitos_Separados(A), 250, 140 );
     }
}
=====
```

```
// @(#)TMinimo.java 1.0 02/06/03

import java.awt.*;
import java.applet.*;


public class TMinimo extends Applet {

      TextField   E1, E2, E3;
      Button      B1;

      public void init() {

            E1 = new TextField ("Introduzca el primer número");
            E2 = new TextField ("Introduzca el segundo número");
            E3 = new TextField ("Introduzca el tercer número");

            B1 = new Button ("Aceptar");

            add (E1); add (E2); add (E3);
            add (B1);
      }


      public boolean action (Event E, Object O){

            if (E.target == B1){
                  int X, Y, Z;

                  X = Integer.parseInt(E1.getText());
                  Y = Integer.parseInt(E2.getText());
                  Z = Integer.parseInt(E3.getText());
                  showStatus (Integer.toString(Math.min( (Math.min(X, Y)), Z )
));

                  E1.setText("Introduzca el primer número");
                  E2.setText("Introduzca el segundo número");
                  E3.setText("Introduzca el tercer número");
            }

            return (true);
      }

      public void paint(Graphics G) {

            G.drawString("Mi clase Minimo!!", 150, 150 );
      }
}
===
```

```
//@(#)TPrimo.java

import java.awt.*;
import java.applet.*;

public class TPrimo extends Applet {

     TextField  E1;
     Button     B1;

     boolean    Sw;

     private boolean Primo (long N){


          long Divisor = 2;

          while (Divisor < N){

               if (N % Divisor == 0)
                    Divisor = N;

               Divisor++;
          }

          return (N == Divisor || N == 1) ;
     }

     public void init() {

          Sw = true;

          E1 = new TextField ("Introduzca un número");
          B1 = new Button ("Aceptar");


          add (E1);  add (B1);
     }


     public boolean action (Event E, Object O){

          if (E.target == B1)  {
               if (this.Primo(Integer.parseInt(E1.getText()) ))
                    showStatus ("Es primo");
               else
                    showStatus ("No es primo");

               E1.setText("Introduzca un número");

               repaint();
          }

          return (true);
```

```
      }

      public void paint(Graphics G) {

            if (Sw){
                  byte X = 1;

                  for (long I = 1; I <= 1000; I++)
                        if (this.Primo(I)){
                              G.drawString(Long.toString(I), 100, X * 20);
                              X++;
                        }

                  Sw = false;
            }
      }
}
====
```

```
import java.awt.*;
import java.applet.Applet;

public class TPalindromo extends Applet{
     TextField E1;
     Label     L1;

     private int Valor ;

     public void Inicializar(int val){
          Valor=val;
     }

      public void Invertir(){

          int Aux = 0;

          while (Valor > 0){
               Aux = (Aux * 10) + (Valor % 10);
               Valor =Valor/10;
          }

          Valor = Aux;

      }

     public void init (){

          L1 = new Label("Introduzca un numero ");
          E1 = new TextField(10);
          add(L1);
          add(E1);
     }
     public boolean action(Event E, Object O){
          if (E.target == E1){
               Inicializar (Integer.parseInt(E1.getText()) );
               repaint ();
          }
          return true;
     }

     public void paint (Graphics G){

          Invertir();
          if( Integer.parseInt(E1.getText())==Valor)
               G.drawString("El numero es palindrome",100,100);
          else
               G.drawString("El numero no es palindrome",100,120);

     }
}
===
```

```
// @(#)TMCD.java

import java.awt.*;
import java.applet.*;

public class TMCD extends Applet {

     TextField E1,E2;
     Label L1;
     int N1, N2, R;
     public void init() {

          E1 = new TextField(5);
          E2 = new TextField(5);
          L1 = new Label("Introduzca dos numeros");

          add(L1); add(E1);add(E2);
     }

     public boolean action(Event E, Object O){


          if(E.target == E2){
               N1 = Integer.parseInt(E1.getText());
               N2 = Integer.parseInt(E2.getText());
               if (((N1%N2)==0) ||((N2%N1)==0))
                    R = Math.max(N1,N2);
               else
                   R =  N1 * N2;
               showStatus("El MCD de los dos numeros es:
"+Integer.toString(R));
          }
          return(true);
     }

}
===
```

```
// @(#)TPromedio.java 1.0 02/06/03

import java.awt.*;
import java.applet.*;

public class TPromedio extends Applet {

      TextField E1;
      Label L1;

      public void init() {

            E1 = new TextField(5);
            L1 = new Label("Introdusca el promedio del alumno");

             add(L1);add(E1);

      }

      public boolean action(Event E, Object O ) {

            int Pro, R=0;
            if(E.target == E1 ){
                  Pro =Integer.parseInt(E1.getText());
                  E1.setText("");
                  if((Pro>=90)&&(Pro<=100))
                        R = 4;
                  if((Pro>=80)&&(Pro<=89))
                        R = 3;
                  if((Pro>=70)&&(Pro<=79))
                        R = 2;
                  if((Pro>=60)&&(Pro<=69))
                        R = 1;
                  if(Pro<60)
                        R = 0;
                 showStatus("El resultado del promedio es:
"+Integer.toString(R));
            }
            return(true);
      }
}
===
```

```
 * @(#)TMoneda.java

import java.awt.*;
import java.applet.*;


public class TMoneda extends Applet {

     Button    B1;

     private int Cara, Cruz;

//--------------------------------------------------------------------------
-----

     private boolean Voltear(){

          int Sw = (int) (Math.random() * 2);

          return (Sw == 1);
     }

//--------------------------------------------------------------------------
-----

     public void init() {

               Cara = Cruz = 0;

               B1 = new Button ("Lanzar");
               add (B1);
     }

//--------------------------------------------------------------------------
-----

     public boolean action (Event E, Object O){

          if (E.target == B1){

               if (Voltear())

                    Cara++;
               else
                    Cruz++;

               repaint();
          }

          return (true);
     }

//--------------------------------------------------------------------------
-----
```

```
      public void paint(Graphics G) {

            G.drawString("Cara = " + Integer.toString(Cara), 150, 160 );
            G.drawString("Cruz = " + Integer.toString(Cruz), 150, 180 );
      }

}
== ==

// @(#)TMultiplicar.java
 *
import java.awt.*;
import java.applet.*;

public class TMultiplicar extends Applet {

      TextField  E1;
      Label      L1;

      private  int Valor, X, Y;
      private  boolean Sw;


      public void init() {

            Sw = false;
      X = (int) (Math.random() * 10);
            Y = (int) (Math.random() * 10);

            Valor = X * Y;

            E1 = new TextField (8);
            L1 = new Label ("Introduzca la respuesta: ");

            add (L1);  add (E1);
      }

      public boolean action (Event E, Object O){


            if (E.target instanceof TextField){

                        if (Valor == Integer.parseInt(E1.getText() )){

                              showStatus ("Muy bien!!!");

                              X = (int) (Math.random() * 10);
                              Y = (int) (Math.random() * 10);

                              Valor = X * Y;
                              Sw = true;
                              repaint ();
                        }
```

```
                    else{
                         showStatus ("No, por favor intente otra vez");

                         E1.setText("");
                    }

                    return (true);
          }
          else
               return (false);
     }

     public void paint(Graphics G) {

          if (!Sw)
               G.drawString("Cuanto es !!  " + Integer.toString(X) + " por "
+ Integer.toString(Y), 150, 160 );
          else{
               G.drawString("Ahora, pruebe otra vez!!!  " +
Integer.toString(X)  + " por " + Integer.toString(Y), 150, 160 );
               Sw = false;
          }
     }

}
```

```
 * @(#)TMultiplicar.java

import java.awt.*;
import java.applet.*;

public class TProducto extends Applet {

     TextField  E1;
     Label      L1;

     private  int Valor, X,Y, Cont;
     private  double Buenas;
     private  boolean Sw;

     public void init() {

          Cont =  0;
          Buenas = 0;

          Sw = false;
          X = (int) (Math.random() * 10);
          Y = (int) (Math.random() * 10);

          Valor = X * Y;

          E1 = new TextField (8);
          L1 = new Label ("Introduzca la respuesta: ");

          add (L1);  add (E1);
     }

     public boolean action (Event E, Object O){

          int I = 1,R = (int) (Math.random() * 5);

          if (E.target instanceof TextField){

                    Cont++;

                    if (Valor == Integer.parseInt(E1.getText() )){

                         Buenas++;

                         switch (R){
                              case 0: showStatus ("Muy bien!!!"); break;
                              case 1: showStatus ("Excelente!!!"); break;
                              case 2: showStatus ("Buen trabajo!!!");
break;
                              case 3: showStatus ("Sigue asi, vas muy
bien!!!"); break;
                              case 4: showStatus ("Sos un nercillo!!!");
break;
                         }
```

```
                              X = (int) (Math.random() * 10);
                              Y = (int) (Math.random() * 10);

                              Valor = X * Y;
                              Sw = true;
                        }
                        else{
                              switch (R){
                                    case 0: showStatus ("No, por favor intente
otra vez"); break;
                                    case 1: showStatus ("Error. Pruebe otra
vez"); break;
                                    case 2: showStatus ("¡No te des por
vencido!"); break;
                                    case 3: showStatus ("¡No, sigue
intentandolo!"); break;
                                    case 4: showStatus ("Sos un medio bruto!!!");
break;
                              }
                        }

                        E1.setText("");
                        repaint();
                        return (true);
            }
            else
                  return (false);
      }

      public void paint(Graphics G) {

            G.drawString("El producto es:  " + Integer.toString(X) + " * " +
Integer.toString(Y),150, 180);

            if (Cont == 10){

                  if((Buenas/100)>0.07){
                        G.drawString("El porcentaje de respuestas correctas es:"
+(Buenas * 10),150, 200);
                        Cont = 0;
                        Buenas = 0;
                  }
                  else
                        G.drawString("Por favor pide a tu profesor ayuda
adicional",150, 200);
            }

      }


}
======
```

```
 * @(#)TAdivina.java
import java.awt.*;
import java.applet.*;

public class TAdivina extends Applet {

     TextField   E1;

     private  int Valor;

     public void init() {

          Valor = 1 + (int) (Math.random() * 1000);

          E1 = new TextField ("Adivine un número entre 1 y 1000");
          E1.setSelectionEnd((E1.getText()).length() );
          add (E1);
     }

     public boolean action (Event E, Object O){

          if (E.target == E1){

               if (Integer.parseInt(E1.getText()) == Valor){
                    showStatus ("Felicidades, adivinaste el número!!!");
                    Valor = 1 + (int) (Math.random() * 1000);
               }
               else{
                    if (Integer.parseInt(E1.getText()) > Valor)
                         showStatus ("Demasiado grande. Pruebe otra vez");
                    else
                         showStatus ("Demasiado chico. Pruebe otra vez");
               }

               E1.setText("Adivine un número entre 1 y 1000");
               E1.setSelectionEnd((E1.getText()).length() );

               return (true);
          }
          else
               return (false);
     }

     public void paint(Graphics G) {

          G.drawString("MADE BY 1) ACP  2) LRL", 50, 260 );
     }

}

======
```

```
// @(#)TAdivina.java 1.0 02/06/04
import java.awt.*;
import java.applet.*;

public c lass TAdivinador extends Applet {

     TextField   E1;
     private  int Valor, C;
     boolean sw;
     public void init() {

          Valor = 1 + (int) (Math.random() * 1000);
          C = 0;
          sw = false;
          E1 = new TextField ("Adivine un número entre 1 y 1000");
          E1.setSelectionEnd((E1.getText()).length() );
          add (E1);
     }

     public boolean action (Event E, Object O){

          if (E.target == E1){

               C++;
               sw=true;

               if (Integer.parseInt(E1.getText()) == Valor){
                    showStatus ("Felicidades, adivinaste el número!!!");
                    Valor = 1 + (int) (Math.random() * 1000);
                    sw = false;
               }
               else{
                    if (Integer.parseInt(E1.getText()) > Valor)
                         showStatus ("Demasiado grande. Pruebe otra vez");
                    else
                         showStatus ("Demasiado chico. Pruebe otra vez");
               }

               E1.setText("Adivine un número entre 1 y 1000");
               E1.setSelectionEnd((E1.getText()).length() );

               return (true);
          }
          else
               return (false);
     }

     public void paint(Graphics G) {

       if(sw){
          if(C <= 10){
               G.drawString("¡O ya sabías el juego o tuviste suerte!", 50,
240 );
```

```
                if(C ==10)
                     G.drawString("¡Ajá!¡Ya sabes el secreto!", 50, 250 );
           }
           else
                G.drawString("¡Deberias haberlo hecho mejor!", 50, 260 );

           C=0;
      }
           G.drawString("MADE BY 1) ACP  2) LRL", 50, 270 );
     }


}

====
```

```
 * @(#)TPower.java
import java.awt.*;
import java.applet.*;


public class TPower extends Applet {

     TextField    E1, E2;
     Button       B1;

     private  int Base, Exp;

     private long Power_Rec (int B, int E){

          if (E == 0)
               return (1);
          else
               if (E == 1)
                    return (B);
               else
                    return (B * Power_Rec (B, E-1));
     }

     public void init() {

          E1 = new TextField ("Escriba la base");
          E2 = new TextField ("Escriba el exponente");
          B1 = new Button ("Power");


          add (E1); add (E2);  add (B1);
     }

     public boolean action (Event E, Object O){

          if (E.target == B1){

               if (!(Integer.parseInt(E1.getText()) < 0 ||
Integer.parseInt(E2.getText()) < 0))
                    showStatus(Long.toString(Power_Rec
(Integer.parseInt(E1.getText()), Integer.parseInt(E2.getText())) ));

               return (true);
          }
          else
               return (false);
     }

}
=====
```

```
* @(#)TTorrez_Hanoi.java 1.0 02/06/04

import java.awt.*;
import java.applet.*;


public class TTorrez_Hanoi extends Applet {

      public void init() {
      }

      public void paint(Graphics g) {
            g.drawString("Problema resuelto!!", 50, 60 );
      }
}
=====
```

```
/*
 * @(#)TFactorial.java
 *
import java.awt.*;
import java.applet.*;

public class TFactorial extends Applet {

     TextField   E1;
     Button      B1;

     private  int V[] = new int[500];
     private  byte Dim;

     private void Factorial (int N){

          for (byte I = 1; I <= N; I++)
               V[++Dim] = Factorial_Rec (I-1);
     }

     private int Factorial_Rec (int N){

          if (N == 0)
               return (1);
          else
               return (N * Factorial_Rec(N-1));
     }

     public void init() {

          Dim = 0;
          E1 = new TextField (5);
          B1 = new Button ("Aceptar");

          add (E1);  add (B1);
     }

     public boolean action (Event E, Object O){

          if (E.target == B1){

               if (Integer.parseInt(E1.getText()) > 0){
                    Factorial (Integer.parseInt(E1.getText()));
                    repaint();
               }

               return (true);
          }
          else
               return (false);
     }

     public void paint(Graphics G) {
```

```
           for (byte I = 1; I <= Dim; I++)
                if (I < 20)
                     G.drawString(Integer.toString((V[I])), (I * 45) + 10,
40);
                else

                     G.drawString(Integer.toString((V[I])), ((I-20) * 45) +
5, 40);

           Dim = 0;
      }

}
=====0
```

```
/* @(#)TMystery.java

import java.awt.*;
import java.applet.*;


public class TMystery extends Applet {

     TextField E1, E2;
     Label L1;
     String X, Y;

     public int Mystery(int A, int B){

          if(B == 1)
               return (A);
          else
               return(A+(Mystery( A, B - 1 )));

     }
     public void init() {

          L1 = new Label("Introduzca dos datos");
          E1 = new TextField(5);
          E2 = new TextField(5);

          add(L1); add(E1);add(E2);
     }
     public boolean action(Event E, Object O){
          if(E.target == E2){

               X = E1.getText();
               Y = E2.getText();

     showStatus(Integer.toString(Mystery(Integer.parseInt(X),Integer.parseInt
(Y))));
               repaint();
          }
          return(true);
     }
     public void paint(Graphics g) {

          g.drawString("Programa Misterioso!!", 50, 60 );
     }

}
 =======
import java.io.*;

public class TMatematicas{

     public double Valor;
     TMatematicas(){
```

```
     Valor = 0;
}
public void Asignar(double N){
     Valor = N;
}

double Absoluto(){

     return(Math.abs(Valor));
}

double RedondearPequenio(){

     return(Math.ceil(Valor));
}
double Coseno(){

     return(Math.cos(Valor));
}
double Seno(){

     return(Math.sin(Valor));
}
double Exponencial(){

     return(Math.exp(Valor));
}
double RedondearGrande(){

     return(Math.floor(Valor));
}
double Logaritmo(){

     return(Math.log(Valor));
}
double RaizCuadrada(){

     return(Math.sqrt(Valor));
}
double Tangente(){

     return(Math.tan(Valor));
}
double Potencia(double Exp){

     return(Math.pow(Valor,Exp));
}
double Maximo(double Y){


     return(Math.max(Valor,Y));
}
double Minimo(double Y){
```

```
        return(Math.min(Valor,Y));
    }
    static public void Opciones(){

        System.out.println ();
        System.out.println ();
        System.out.println ("0) Salir");
        System.out.println ("1) Mostrar");
        System.out.println ("2) Valor Minimo");
        System.out.println ("3) Valor Maximo");
        System.out.println ("4) Seno");
        System.out.println ("5) Coseno");
        System.out.println ("6) Tangente");
        System.out.println ("7) Raiz cuadrada");
        System.out.println ("8) Exponencial");
        System.out.println ("9) Logaritmo");
        System.out.println ();
        System.out.print ("R.- ");
    }

    static public void Limpiar (){

        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
        System.out.println ();
    }

    public static void main (String Args[]) throws IOException{

        TMatematicas MiMate = new TMatematicas();
        MiMate.Asignar(Double.parseDouble(Args[0]));
        double Aux;

        Opciones();
        System.out.flush();
        int Op = System.in.read () - 48;
        System.in.skip (2);
        System.out.println ();

        while (Op > 0){

            switch (Op){
                case 1:  System.out.println ("El valor es: " +
MiMate.Valor); break;

                case 2:  System.out.println ("El valor minimo es: " +
MiMate.Minimo (25)); break;
```

```
                    case 3:    System.out.println ("El valor maximo es: " +
MiMate.Maximo (25)); break;

                    case 4:  System.out.println ("El seno es: " +
MiMate.Seno() ); break;

                    case 5:  System.out.println ("El coseno es: " +
MiMate.Coseno() ); break;

                    case 6:  System.out.println ("La tangente es: " +
MiMate.Tangente() ); break;

                    case 7:  {
                              if (MiMate.Valor > 0)

                                   System.out.println ("La raiz cuadrada
es: " + MiMate.RaizCuadrada() );
                              else
                                   System.err.println ("Error: Sus datos
son negativos!!!");
                         }; break;

                    case 8:  {
                              if (MiMate.Valor > 0)
                                   System.out.println ("El e^(x): " +
MiMate.Exponencial() );
                              else
                                   System.err.println ("Error: Sos un
bruto!!!");

                         }; break;

                    case 9:  {
                              if (MiMate.Valor > 0)
                                   System.out.println ("El logaritmo es: "
+ MiMate.Logaritmo() );
                              else
                                   System.err.println ("Error: Sos un
animal!!!");
                        }; break;
               }

               Limpiar();
               Opciones();
               System.out.flush();
               Op = System.in.read () - 48;
               System.in.skip (2);
          }
     }
}
======
```

```
import java.awt.*;
import java.applet.Applet;
import java.io.*;

public class TRadio extends Applet{
      double  Radio;
      TextField E1;
      Label L1;

      public void init(){

            Radio = 1;
            L1 = new Label("Introduzca el radio: ");
            E1 = new TextField(5);

            add(L1); add(E1);
      }

      public boolean action(Event E, Object O){

            if(E.target==E1){
                  Radio = Double.parseDouble(E1.getText());
                  repaint();
            }

            return(true);
      }
=====

      public void paint(Graphics G){

            if (Radio > 0){
                  double Area = (Math.PI) * (Radio * Radio);
                  G.drawString("El area de la esfera es: "+Area ,100, 100);
            }
      }
}

======

class TMystery{

      static int Mystery(int A, int B){

            if(B == 1)
                  return(A);
            else
                  return(A + Mystery( A, B - 1 ));

      }

      public static void main(String Args[]){
```

```
            System.out.println(Mystery(5, 2));
      }
}
```

==========

```
* @(#)TMonedas.java

import java.awt.*;
import java.applet.*;


public class TMonedas extends Applet {

      Label      L1;
      TextField  E1;


      private  TextField V[] = new TextField [7];
      private  boolean Sw;

      private  int Pesos[] = new int[7];
      private  int Monto;
      private  boolean Solucion;
      private  int Mostrar[] = new int[7];

      public void SG1 (){

            for (byte I=1; I <= 6; I++){
                  V[I] = new TextField ();
                  add (V[I]);
                  V[I].reshape(I*30, 80, 30, 20);
            }
      }

      public void Adicionar (){

            for (byte I=1; I <= 6; I++){
                  Pesos[I] = Integer.parseInt(V[I].getText() );
                  V[I].setText("");
            }
      }

      public void Mochila (int Dim, int Cuenta){

                  if (Cuenta == Monto)
                        Solucion = true;
                  else{
                        if (Cuenta < Monto && Dim <= 6){
                              Dim++;
                              Mostrar[Dim] = Pesos[Dim];
                              Mochila (Dim, Cuenta + Pesos[Dim]);

                              if (!Solucion){
                                    Mochila (Dim++, Cuenta);
                              }
                        }
                  }
      }
```

```
    public void init() {

         setLayout(null);
         Sw = true;
         Solucion = false;

         L1 = new Label ("Introduzca el peso: ");
         E1 = new TextField (5);

         add (L1);  add (E1);

         L1.reshape(15, 10, 120, 15);
         E1.reshape(150, 10, 30, 20);
    }

    public boolean action (Event E, Object O){

         if (E.target == E1){
              Adicionar();
              Monto = Integer.parseInt(E1.getText());
              Mochila (1, 0);
              repaint();
         }

         return (true);
    }

    public void paint(Graphics G) {

         if (Sw){
              SG1();
               Sw = !Sw;
         }

         if (Solucion){
                G.drawString("Encontro", 100, 150);
                Sw = false;

                for (byte I = 1; I <= 7; I++){
                    if (Mostrar[I] != 0)
                         G.drawString(Integer.toString(Mostrar[I]), (I*20)
+ 100, 200);
                }
         }
         else
              G.drawString("No lo encontro", 100, 150);
    }
```

```
//mochila.java

import java.awt.*;
import java.applet.*;
public class TMoney extends Applet {

     Label      L1;
     TextField  E1;

     private  TextField V[] = new TextField [7];
     private  boolean Sw;
     private  int Pesos[] = new int[7];
     private  int Monto;
     private  boolean Solucion;
     private  int Mostrar[] = new int[7];

     public void SG1 (){

          for (byte I=1; I <= 6; I++){
               V[I] = new TextField ();
               add (V[I]);
               V[I].reshape(I*30, 80, 30, 20);
          }
     }

     public void Adicionar (){

          for (byte I=1; I <= 6; I++){
               Pesos[I] = Integer.parseInt(V[I].getText() );
               V[I].setText("");
          }
     }

     public void Mochila (int Dim, int Cuenta){

               if (Cuenta == Monto)
                    Solucion = true;
               else{
                    if (Cuenta < Monto && Dim <= 6){
                         Dim++;
                         Mostrar[Dim] = Pesos[Dim];
                         Mochila (Dim, Cuenta + Pesos[Dim]);

                         if (!Solucion){
                              Mochila (Dim++, Cuenta);
                         }
                    }
               }
     }


     public void init() {

          setLayout(null);
```

```
        Sw = true;
        Solucion = false;

        L1 = new Label ("Introduzca el peso: ");
        E1 = new TextField (5);

        add (L1);  add (E1);

        L1.reshape(15, 10, 120, 15);
        E1.reshape(150, 10, 30, 20);
    }

    public boolean action (Event E, Object O){

        if (E.target == E1){
            Adicionar();
            Monto = Integer.parseInt(E1.getText());
            Mochila (1, 0);
            repaint();
        }

        return (true);
    }


    public void paint(Graphics G) {

        if (Sw){
            SG1();
             Sw = !Sw;
        }
        if (Solucion){
             G.drawString("Encontro", 100, 150);
             Sw = false;
        }
        }
        else
            G.drawString("No lo encontro", 100, 150);
    }
}
```

4.3. import java.io.*;

```
public class TMatematicas{

      public double Valor;
      TMatematicas(){

            Valor = 0;
      }
      public void Asignar(double N){
            Valor = N;
      }

      double Absoluto(){

            return(Math.abs(Valor));
      }
      double RedondearPequenio(){

            return(Math.ceil(Valor));
      }
      double Coseno(){

            return(Math.cos(Valor));
      }
      double Seno(){

            return(Math.sin(Valor));
      }
      double Exponencial(){

            return(Math.exp(Valor));
      }
      double RedondearGrande(){

            return(Math.floor(Valor));
      }
      double Logaritmo(){

            return(Math.log(Valor));
      }
      double RaizCuadrada(){

            return(Math.sqrt(Valor));
      }
      double Tangente(){

            return(Math.tan(Valor));
      }
      double Potencia(double Exp){

            return(Math.pow(Valor,Exp));
      }
```

```
double Maximo(double Y){


     return(Math.max(Valor,Y));
}
double Minimo(double Y){

     return(Math.min(Valor,Y));
}
static public void Opciones(){

     System.out.println ();
     System.out.println ();
     System.out.println ("0) Salir");
     System.out.println ("1) Mostrar");
     System.out.println ("2) Valor Minimo");
     System.out.println ("3) Valor Maximo");
     System.out.println ("4) Seno");
     System.out.println ("5) Coseno");
     System.out.println ("6) Tangente");
     System.out.println ("7) Raiz cuadrada");
     System.out.println ("8) Exponencial");
     System.out.println ("9) Logaritmo");
     System.out.println ();
     System.out.print ("R.- ");
}


static public void Limpiar (){

     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
     System.out.println ();
}


public static void main (String Args[]) throws IOException{

     TMatematicas MiMate = new TMatematicas();
     MiMate.Asignar(Double.parseDouble(Args[0]));
     double Aux;

     Opciones();
     System.out.flush();
     int Op = System.in.read () - 48;
     System.in.skip (2);
     System.out.println ();
```

```
          while (Op > 0){

                switch (Op){
                     case 1:  System.out.println ("El valor es: " +
MiMate.Valor); break;

                     case 2:  System.out.println ("El valor minimo es: " +
MiMate.Minimo (25)); break;

                     case 3:    System.out.println ("El valor maximo es: " +
MiMate.Maximo (25)); break;

                     case 4:  System.out.println ("El seno es: " +
MiMate.Seno() ); break;

                     case 5:  System.out.println ("El coseno es: " +
MiMate.Coseno() ); break;

                     case 6:  System.out.println ("La tangente es: " +
MiMate.Tangente() ); break;

                     case 7:  {
                                  if (MiMate.Valor > 0)

                                       System.out.println ("La raiz cuadrada
es: " + MiMate.RaizCuadrada() );
                                  else
                                       System.err.println ("Error: Sus datos
son negativos!!!");
                             }; break;

                     case 8:  {
                                  if (MiMate.Valor > 0)
                                       System.out.println ("El e^(x): " +
MiMate.Exponencial() );
                                  else
                                       System.err.println ("Error: Sos un
bruto!!!");

                             }; break;

                     case 9:  {
                                  if (MiMate.Valor > 0)
                                       System.out.println ("El logaritmo es: "
+ MiMate.Logaritmo() );
                                  else
                                       System.err.println ("Error: Sos un
animal!!!");
                            }; break;
                }

                Limpiar();
                Opciones();
                System.out.flush();
```

```
                Op = System.in.read () - 48;
                System.in.skip (2);
            }
        }
}
======
```

4.6.

```
import java.awt.*;
import java.applet.Applet;
import java.io.*;

public class TEsfera extends Applet{
      double  Radio;
      TextField E1;
      Label L1;


      public void init(){

            Radio = 1;
            L1 = new Label("Introduzca el radio de la esfera: ");
            E1 = new TextField(5);

            add(L1); add(E1);
      }


      public boolean action(Event E, Object O){

            if(E.target==E1){
                  Radio = Double.parseDouble(E1.getText());
                  repaint();
            }

            return(true);
      }


      public void paint(Graphics G){

            if (Radio > 0){
                  double Volumen = (4/3)*Math.PI*Math.pow(Radio, 3);
                  G.drawString("El volumen de la esfera es: "+Volumen ,100,
100);
            }
      }
}
```

===

4.9 Una aplicación del método Math.floor está redondeando un valor al entero más cercano. El enunciado: **y = Math.floor(z + .5);** redondea el número **x** al entero más cercano y asigna el resultado a **y.** Escriba una applet que lea valores **double** y utilice el enunciado anterior para redondear cada uno de estos números al entero más cercano. Para cada número procesado, exhiba tanto el número original como el redondeado. Utilice las técnicas descritas en el ejercicio de autoevaluación.

```
import java.awt.*;
import java.applet.*;

public class TRedondeando extends Applet {

      TextField Etiqueta1;
      private double y;

      public void init() {
            Etiqueta1 = new TextField("Teclee un numero", 25);
            y = 0;
            add(Etiqueta1);
      }
      public boolean action(Event e, Object o){
            double z;
            if(e.target == Etiqueta1){
                  z = Double.parseDouble(o.toString());
                  y = Math.floor(z + .5);
                  repaint();
            }
            return(true);
      }
      public void paint(Graphics g)
      {
         g.drawString("El número redondeado al entero más cercano es: "+(y),
100, 100 );
      }
}
```

&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&&

4.10 Podemos usar Math.floor para redondear un número a una posición decimal específica. El enunciado:

y = Math.floor(x * 10 + .5) / 10;

redondea x a la posición de las décimas (la primera posición a la derecha del punto decimal). El enunciado:

y = Math.floor(x * 100 + .5) / 100;

redondea x a la posición de centésimas (es decir la segundaposición a la der. Del punto decimal). Escriba una apple que defina cuatro métodos para redondear un número x de diversas maneras:

a) roundToInteger (number) // redondear a entero
b) roundToTenths(number) // redondear a décimas
c) roundToHundredths(number) // redondear a centésimas
d) roundToThousandths(number) // redondear a milésimas.

Para cada valor leído, su programa deberá exhibir el valor original, el número redondeado al entero más cercano, el número redondeado a la décima más cercana, el número redondeado a la centésima más cercana y el número redondeado a la milésima más cercana.

```
import java.awt.*;
import java.applet.*;
public class Tredondeo extends Applet {

     TextField      Etiqueta1;//E1
     CheckboxGroup  Grupo1;//G1
     Checkbox       B1, B2, B3, B4, B5; //R..

     private double Z, ZZ; //Y YY

     public void init() {
          Z = 0;
          setLayout (null);//Disposición/distribución
          Etiqueta1 = new TextField(5);
          Grupo1 = new CheckboxGroup ();
            B1 = new Checkbox ("Entero", Grupo1, false);
            B2 = new Checkbox ("Decimas", Grupo1, false);
            B3 = new Checkbox ("Centecimas", Grupo1, false);
            B4 = new Checkbox ("Milecimas", Grupo1, false);
            B5 = new Checkbox ("Nuevo", Grupo1, false);

          add (Etiqueta1);
          add (B1); add (B2); add (B3); add (B4);  add (B5);

          Etiqueta1.reshape(100, 10,90, 20);//rechazar/reformar
          B1.reshape(95, 50, 70,15);
          B2.reshape(95, 70, 70,15);
          B3.reshape(95, 90, 90,25);
          B4.reshape(95, 110, 80,25);
          B5.reshape(95, 130, 70,25);
     }
     public boolean action(Event e, Object o){
          Z = Double.parseDouble( E1.getText() );
          if (e.target instanceof Checkbox){
               if (B1.getState())
                    ZZ = Math.floor(Z);
               if (B2.getState())
                    ZZ = Z / 10;
               if (B3.getState())
                    ZZ = Z / 100;
               if (B4.getState())
                    ZZ = Z / 1000;
               if (B5.getState()){
                    Z  = 0;
                    ZZ = 0;
                    Etiqueta1.setText("");
               }
          }

          repaint();
```

```
            return(true);
      }

      public void paint(Graphics g) {

         g.drawString("El número redondeado al entero mas cercano es: " +
(ZZ), 200, 200 );
      }
}
```